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MICRODERMABRASION CANISTER RACK SYSTEM

DISCUSSION OF RELATED ART

Plastic Surgeons for the past ten years have used a procedure called Micro-Dermabrasion
 5 to treat various types of skin blemishes. In the procedure, a machine is used which contains Aluminum Oxide crystals, Sodium Chloride, or Baking Soda particles flowing in a continuous air stream. Particles exit through an exit tube, and brush against a patients skin in order to smoothen their upper skin layer. Immediately after brushing against a patient's skin, the particles are sucked into a vacuum tube and re-circulated through the machine.

10 The Microdermabrasion process uses a stream of fine crystals to polish and smooth skin. Crystals are commonly stored in a first chamber to be pumped against a person's skin at high velocity, and then collected to a second chamber. The cleaning of the chambers and exchange of chambers has been cumbersome.

15 Microdermabrasion machines typically contain two canisters, a storage canister and a waste canister, between which the small particles flow. After each individual use, surgeons must refill the storage canister with new particles and dispose of the particles in the waste canister. Currently, the commonly used Threaded Bore Canister Design complicates this process. The threaded attachment portions are often cross-threaded by continual unscrewing. Also every time
 20 that the canisters are unscrewed, fine abrasive dust is released. When unscrewing waste canisters, there is the added danger of releasing abraded skin particles into the work environment.

25 Inventor Metcalf in U.S. Patent Number 6,238,275 details a microdermabrasion machine which uses a threaded bore mechanism on the top plate of the canister. Inventor Ignon in U.S. Patent Number 6,527,783, Inventor Di Fiore in U.S. Patent Number 6,527,783 and Inventor Owen in U.S. Patent Number 6,562,050 all show a threaded bore mechanism similar to that described above.

Other prior art does not focus on the method of attachment for the canisters.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front view of the machine

Fig. 2 is a top view of the rack

30 Fig. 3 is a front view of the rack filled with canisters

Fig. 4 is a bottom view of a canister

Fig. 5 is a bottom view of a storage canister (New)

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present embodiment includes a pair of canisters, a first canister for supplying crystal called a supply canister 205 and a second canister for storing crystal, the storage canister 210.

The crystal begins in the first canister 205 and is connected by conduits 305 to the second canister 210. A vacuum 105 applied to the second canister 210 produces an air pressure

↑
Replace

The crystal begins in the first canister 205 and is connected to the second canister 210 via a microdermabrasion machine 100 and conduits 305, which serve to suck in as well as eject the crystal at a remote patient treatment station, not shown.

: 205 to the second
rflow and through a
tained in the storage
that prevents crystals

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Both canisters have tops 215 that can be opened for cleaning and replacement of crystal. The supply canister 205, initially full of crystals 405, has an Air inlet 315 on its top 215. The air inlet 315 further includes a filter 320 preventing dust and ambient suspended particles from entering the supply canister 205. The air filter 320 may be formed of a sponge-like material and disposed within a bore 220 located on the top of the supply canister top 215.

The supply canister 205 further includes a feeding conduit 325 formed of a metal tube intruding within the canister from the canister bottom 225 and rising vertically to a level above the pile of initial crystal supply. The feeding conduit 325 beginning with a metal tube open at the top continues through the bottom of the supply canister 205 and through the base of the canister rack 230 into the microdermabrasion machine 100 for the use on a patient.

The canister rack 230 holds the pair of canisters. The canister rack can be made of machined aluminum. The interface of the metal rack to the supply canister is a simple one. An O-ring 330 disposed around the bottom portion of the feeding conduit 325 maintains an airtight seal between the bore 220 in the bottom of the canister and the bore in the metal canister rack 235. The O-ring 330 holds itself in place by interference fit. Made of rubber, the O-ring 330 fits snugly into a circumferential indentation surrounding the interface of the canister rack bore 235 and the supply canister bore 220 so that the crystal experiences uninterrupted travel through both portions of the feeding conduit 325, namely the upper portion which is the metal tube and the lower portion which is a bore through the canister rack 230.

The canister rack 230 also holds a storage canister 210 receiving used Crystal 410 from the microdermabrasion machine 100. The used Crystal 410 having been in contact with a

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person's skin may contain skin particles that should most likely be trapped within the storage canister 210.

The storage canister 210 has a pair of tubes protruding into the canister cavity 240. A first storage canister tube 250 extends vertically from a bore ²⁵⁴ 255 in the bottom of the canister to

5 At corresponding locations in the canister rack 230, there are formed two identical bores 256 and 257 having O-rings 330 fitted into their circumferential indentations for aligned engagements with O-rings 330 at the side of the storage canister 210.

rage canister tube 250 the storage canister. The ²⁵⁴ 100. from a bore 255 in the further includes a filter 310

10 preventing crystal from leaving the canister. The second storage canister tube forms the top portion of the vacuum conduit ¹⁰⁵. The vacuum conduit connects to a pump. ^{254, 255}

The first and second storage canister tube connects to respective bores in the bottom of the canister. A pair of O-rings disposed around the bore extending into the base ^{1 of the canister} maintains an airtight seal between the bore in the bottom of the canister and the bore in the metal canister

15 rack. ³⁵⁷ Both canisters have similar attachment means for attachment to the canister rack. A horizontal locking pin 350 on the inside face of each canister protrudes horizontally from the base of the canister and mates with a slot in the canister rack. A vertical locking pin ³⁶⁰ near the outside face on the canister rack protrudes vertically and mates with ^{the respective slot 361} ~~the respective slot 361~~ ^{installed on outside face of} the canister. The locking pin is a short protrusion. A pair of latches ³⁷⁰ ~~formed on each outside~~ ³⁵¹ ~~face attaches each canister to the canister rack~~ attaches each canister to the canister rack. The latch can be opened and closed by one hand. Preferably, the latch secures to a slot on the underside of the canister rack.

A machine operator begins with an empty pair of canisters. The operator opens the top of the supply ²⁰⁵ canister and fills the supply canister with crystals. The machine operator then 25 aligns the supply canister so that the locking pin ³⁵⁰ on the inside face of the canister aligns with the slot ³⁵¹ in the inside face of the canister rack. The machine operator then secures the latch ³⁷⁰ of the inquiry canister now filled with crystals. As the operator secures the latch, the O-ring ³³⁰ forms a seal that later allows continuous flow of crystals from the supply canister to the machine. The operator then secures the storage canister ¹²⁰ ¹⁰⁰ in a similar manner.

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CALL OUT LIST OF ELEMENTS

100 Microdermabrasion machine

105 Vacuum

205 Supply Canister

5 210 Storage Canister

215 Canister Tops

220 Supply Canister Bore

225 Canister Bottom

230 Canister Rack

10 235 Canister Rack Bore

240 Canister Cavity

250 First Storage Canister Tube

255 Storage Canister Bore

260 Second Storage Canister Tube

15 305 Conduits

310 Storage Canister Filter

315 Air Inlet

320 Supply Canister Filter

325 Feeding Conduit

20 330 O-ring

350 Horizontal Locking Pin

360 Vertical Locking Pin

370 Latches

405 New Abrasive Crystals

25 410 Used Abrasive Crystals